

**Notice of Allowability**

Application No.

10/801,867

Examiner

Nguyen T. Ha

Applicant(s)

OTSUKA ET AL.

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/6/2007.
2. ☒ The allowed claim(s) is/are 3-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

NGUYEN T. HA  
PRIMARY EXAMINER

## **DETAILED ACTION**

### ***Introduction***

1. The examiner acknowledges the applicants' submission of the amendment dated 9/6/2007. At this point, claims 1-2, and 11-26 have been canceled. Thus, claims 3-10, are pending in the instant application.

### ***Allowable Subject Matter***

2. Claims 3-10 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claims 3-4, the prior art alone or in combination does not teach the limitation of a capacitor equipped substrate assembly comprising a substrate and a capacitor, wherein the thermal expansion coefficient of the capacitor main body is smaller than that of the substrate.

With respect to claims 5-7, the prior art alone or in combination does not teach the limitation of an interposer comprising an interposer main body having a first surface on which a semiconductor device having surface-connecting terminals is mounted and a second surface formed with a recess, and a plurality of interposer main body side electrically conductive vias penetrating the interposer main body between the first surface and a bottom surface of the recess and connected to the surface-connecting terminals.

With respect to claim 8, the prior art alone or in combination does not teach the limitation of a semiconductor device equipped interposer assembly comprising: an interposer main body having a first surface on which the semiconductor device having

surface-connecting terminals is mounted and a second surface formed with a recess, and capacitor disposed in the recess and having front and rear surfaces and a plurality of capacitor side electrically conductive vias extending through the front and rear surfaces.

With respect to claim 9, the prior art alone or in combination does not teach the limitation of an interposer equipped substrate assembly comprising an interposer having a plurality of interposer main body side electrically conductive vias penetrating the interposer main body between first and second surfaces and connected to the surface-connecting terminal and a capacitor disposed in the recess.

With respect to claim 10, the prior art alone or in combination does not teach the limitation of an assembly comprising an interposer having an approximately plate shaped interposer main body having a first surface on which the semiconductor device is mounted and a second surface formed with a recess, and the interposer further having a plurality of interposer main body side electrically conductive vias penetrating the interposer main body between the first surface and a bottom surface of the recess and connected to the surface-connecting terminals and a capacitor disposed in the recess.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Citation Relevant of Prior Art**

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Naito et al. (US 6,606,237) disclose multilayer capacitor, wiring board, decoupling circuit, and high frequency circuit incorporating the same.
- b. Ogawa et al. (US 6,577,490) disclose wiring board.
- c. Mori et al. (US 6,391,422) disclose wiring substrate and stiffener therefor.
- d. Kuroda et al. (US 6,351,369) disclose multi-layer capacitor, wiring substrate.
- e. Nagakari et al. (US 6,282,079) disclose capacitor having low impedance in a wide frequency region.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T. Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NGUYEN T. HA  
PRIMARY EXAMINER

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September 11, 2007